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**Can a processor  
support the execution of  
more than one instruction  
set at a time?**

**Yes. Introducing the  
Intel® Pentium® 4 processor  
supporting Hyper-Threading  
Technology<sup>1</sup>.**



# Introducing the Intel® Pentium® 4 processor with 800-MHz FSB supporting Hyper-Threading Technology<sup>1</sup>.

**Hyper-Threading Technology (HT Technology), coupled with Intel® NetBurst™ microarchitecture, delivers innovative technology and performance for even the most demanding desktop applications and environments. Now introducing 800-MHz FSB for improved system throughput and support for higher system memory bandwidth.**

Intel's commitment to continually bringing the best, most advanced technology and performance is taking the desktop computer platform to a new level. The Intel® Pentium® 4 processor supporting Hyper-Threading Technology<sup>1</sup> is ideal for desktop computing platforms operating at frequencies ranging from 2.40C to 3.20 GHz.

Desktop PCs based on the Intel® Pentium® 4 Processor with HT Technology<sup>2</sup> and 800-MHz FSB support can run faster and more efficiently, which gives today's multitasking user the ability to listen to music, watch movies, play games, capture streaming video off the Internet, and more. And the Pentium 4 processor has the power and headroom to handle the next generation of software applications and Internet innovations, including wireless communications.

## A RICH DIGITAL CONTENT CREATION EXPERIENCE

Today's multitasking users want the ability to edit, create and share digital media simultaneously, without slowing down the system. A desktop PC based on the Intel Pentium 4 Processor with HT Technology<sup>2</sup> and 800-MHz FSB support excels in performance and system responsiveness in this demanding environment, offering an incredible digital media experience.

- **Audio**—the power to encode MP3 files quickly
- **Digital Video and Imaging**—the performance needed to create, edit, and share movies and photos quickly and easily

- **Communications**—the ability to enable fast, easy communication with friends and family
- **Entertainment**—the technology to support fast frame rates and smooth animation for lifelike 3D games

## MAXIMUM PRODUCTIVITY AND HEADROOM

Desktop PC systems based on the Pentium 4 Processor with HT Technology<sup>2</sup> take full advantage of emerging e-Business applications to deliver the performance that successful, competitive businesses demand. You can help position your business customers to maximize productivity and performance so they can:

- **Protect their business investment**—the increased performance enables applications and headroom for the next generation of multi-threaded software, while increasing platform longevity to extend system life and reduce costly refreshes.
- **Attract and retain new business**—greater ability to communicate electronically with customers and suppliers, combined with the ability to create professional quality product brochures and advertising in-house gives growing businesses the appearance and benefits of a large enterprise.
- **Get more done in less time**—a PC based on the Pentium 4 Processor with HT Technology<sup>2</sup> provides faster system response for users of multiple applications and minimizes the impact of background services such as encryption, virus scanning and compression on end-user productivity.

## COMPATIBLE PLATFORM INTEGRATION SOLUTIONS

Intel offers several desktop motherboard solutions designed for the Pentium 4 processor supporting Hyper-Threading Technology<sup>1</sup>. A computer system with an Intel Pentium 4 processor supporting Hyper-Threading Technology, a chipset and BIOS

that support this technology, and an operating system with optimizations for HT Technology delivers unmatched system performance and responsiveness.

## INNOVATIVE FEATURES

Validated according to the most rigorous industry standards for reliability, stability and compatibility, the Pentium 4 processor offers a variety of performance-enhancing features, including:

### HYPER-THREADING TECHNOLOGY

For Pentium 4 processor's supporting Hyper-Threading Technology<sup>1</sup> processor efficiency is increased by executing more than one instruction thread at a time which takes advantage of multitasking environments and multithreaded applications

### INTEL® NETBURST™ MICROARCHITECTURE

#### Hyper-Pipelined Technology

A deeper pipeline allows instructions inside the processor to be queued and executed at the fastest-possible rate, delivering the highest clock speeds for desktop PCs.

### Streaming SIMD Extensions 2

Streaming Single Instruction Multiple Data (SIMD) Extensions 2 consists of 144 instructions, including SIMD double precision floating point, SIMD 128-bit integer, and cache and memory management instructions. Streaming SIMD Extensions 2 enhances performance to accelerate the most demanding aspects of Internet computing, as well as video, speech, encryption, imaging and non-threaded workstation applications.



### ADVANCED DYNAMIC EXECUTION

This characteristic extends the dynamic execution features found in previous-generation P6 micro-architecture. Improved branch prediction accelerates the flow of work to the processor and helps overcome the deeper pipeline. Very deep, out-of-order speculative execution carries out over 100 instructions speculatively, ensuring that the processor's superscalar execution units remain busy and deliver better performance overall.



## THE BOXED INTEL® PENTIUM® 4 PROCESSOR INCLUDES:

- Intel thermal solution with variable speed fan and built-in thermistor
  - Three-year limited warranty
  - Installation instructions
  - Certificate of Authenticity
  - Integrated fan power cable
  - Intel Inside® logo label
- For the most current product information on boxed Pentium 4 processors, visit Intel's Web site at [www.intel.com/reseller](http://www.intel.com/reseller).

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**FEATURE****BENEFIT**

<b>Processor Core Speeds Up to 3.20 GHz</b>	Maximum performance for a wide range of emerging Internet, PC and workstation applications.
<b>800-MHz/533-MHz/400-MHz System Bus</b>	Multiple system bus transfers rates that help speed the transfer of information from the processor to the rest of the system, improving throughput and performance. Also provides the user with the flexibility to take advantage of higher system memory bandwidth
<b>Enhanced Floating Point/Multimedia Unit</b>	A 128-bit floating-point port and a second port for data movement enables smooth lifelike 3-D and graphics.
<b>256- or 512-KB L2 Advanced Transfer Cache</b>	Enhances performance by providing fast access to heavily used data and instructions.
<b>Rapid Execution Engine</b>	Arithmetic Logic Units run at twice the core frequency, provide four ALUs of computing bandwidth and allow lower latency execution, increasing performance for specific integer operations.
<b>128-Bit Floating-Point Port</b>	Floating-Point performance boost provides enhanced 3-D visualization and scientific calculation.
<b>SIMD 128-bit Integer</b>	Accelerates video, speech, encryption and imaging/photo processing.
<b>Execution Trace Cache</b>	Advanced L1 instruction cache removes decoder pipeline latency and caches “decoded” instructions, improving efficiency and hit rate to cached instructions. Greatly improves instruction cache efficiency, maximizing performance on frequently used sections of software code.
<b>Advanced Dynamic Execution</b>	Improved branch prediction enhances performance for all 32-bit applications by optimizing instruction sequences.
<b>Intel-designed thermal solution</b>	Provides an efficient cooling solution for use with the Intel® processor.
<b>Variable speed fan</b>	Provides overall system stability by matching fan speed with environment.
<b>Built-in thermistor</b>	Controls fan speed intelligently, without requiring user intervention.

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# Introducing the Intel® Pentium® 4 processor with 800

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